BRITISH MEDICAL JOURNAL:

BEING THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EDITED FOR THE ASSOCIATION BY ERNEST HART.

LONDON: SATURDAY, JANUARY 6, 1894.

A CLINICAL LECTURE ON A CASE OF PERVERTED LOCALISATION OF SENSATION OR ALLACHÆSTHESIA.

Delivered in the University of Edinburgh.

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I show you to-day a case which I believe to be one of functional disease of the nervous system. It has been under observation for three months, and exhibits numerous interesting features, among which I shall speak in detail of only one, namely, abnormal localisation of tactile and other skin impressions. A general sketch of the case is necessary to our understanding this special feature.

HISTORY AND DESCRIPTION OF CASE.

W. F. is a tall, spare man, 49 years of age, who says that he was formerly a belt cutter and afterwards a commercial traveller, that he has often been ill, having had Bright's disease and prolapse of the rectum, headache, palpitation, breathlessness, and a great variety of other nervous symptoms. He was sent to us as a case of Bright's disease; but the albuminuria soon disappeared, and the oedema, which was distinct on admission, passed rapidly away. But as they disappeared various nervous symptoms manifested themselves, and these have continued with little alteration during the months that we have watched him.

His family history is unimportant, except that his father died of brain disease, apparently apoplexy, at the age of 58 years. His social surroundings were said to be favourable, but exposed him a good deal to changes of weather, and he seems to have indulged in alcohol to a considerable extent. He says that he has suffered much from prolapsus ani, and that he had convulsions shortly before his admission to the wards. He asserts that the doctor who then attended him regarded them as uræmic. The amount of Bright's disease that we witnessed was certainly not such as should have led to anything of the kind, and I incline to think that the seizures must have been of a purely functional nature.

He is a tall, fair man, of neuro-sanguine constitution, has an alert manner, and an expression of countenance fitted to suggest the propriety of close inquiry into his statements. His right foot and leg are constantly in motion except when he is asleep; his left foot and left hand also jerk, but less rhythmically and severely. His eyes show a distinct degree of staring, and the size of his thyroid gland varies remarkably. His temperature is always normal.

The alimentary system shows nothing of importance except some dyspepsia and considerable diarrhoea associated with the prolapse already mentioned.

The hæmopoietic system shows normal blood in respect to corpuscles and hæmoglobin, normal lymphatic glands and spleen, but the thyroid gland is sometimes of natural size, sometimes considerably enlarged.

With regard to the circulatory system, he complains of palpitation, a feeling of faintness, with irregularity of heart action, but unattended by murmurs. His pulse is sharp, 104 per minute, with very low tension between the beats. There is no thickening of the vessel walls.

The respiratory system presents no abnormality, except that the voice is somewhat hoarse, and the expiration is at

times much prolonged, apparently from hindrance to expiration.

The integumentary system is natural, but for profuse perspiration, a slight tendency to acne, and an undue irritability of the vessels which readily produces the phenomenon of urticaria scripta.

The urinary system is now normal.

The functions of the reproductive system are stated to have been in abeyance for two years and a-half.

The nervous system in respect of its sensory functions shows many abnormalities. There are no important subjective phenomena, nor are there any objective abnormalities on the right half of the body. On the left half all kinds of skin impressions are perceived readily, and with normal acuteness, but they are incorrectly localised. This faulty localisation does not vary, but in the arm and leg constantly shows that an impression of touch, of pain, of temperature, applied, say, over the middle third of the radius is perceived as if over the middle third of the ulna. If on the thumb it is felt as if on the little finger, and, similarly, displacement occurs, but always to the same spot over the greater part of the arm and the leg. The left half of the trunk shows a corresponding peculiarity, but above the level of the clavicle there is nothing wrong. In the arm and leg, however, there are areas in which correct localisation exists. Fig 1 represents the front, Fig. 2 the back of the hand and arm, the dark shaded parts showing the areas of localisation, the rest of the limb being abnormal, so that a touch at A is felt as if it were at α , a touch at α as if it were at A. So with B, C, D, E, with their respective Greek letters, while at F, G, and H there is no displacement. It will be observed in the drawing that in the middle of the front of the forearm there is a small portion of skin stretching across the normal area, in which faulty localisation occurs. Fig 3 represents the front of the leg, Fig 4 the back. An impression at A is felt at α , and *vice versa*, one at B is felt at β , and so on. On the front and on the back of the leg a narrow area is marked by shading, and over this field localisation is correct. Fig. 5 represents the front of the trunk. Above the clavicle the shading marks one area of normal localisation; all the rest of this part of the trunk shows displacement of impressions except the narrow shaded line, which is normal. A touch at A is invariably perceived at α , a touch at B as if it were at β , a touch at C as if it were at γ , a touch at D as if it were at Δ . Impressions at E are referred to F, at F are referred to B, at G are referred to C, at H are referred to D, while at I, J, and K they are correctly interpreted. Fig. 6 represents the back of the trunk. Corresponding to the iliac crest, the shaded area marks normal condition. In all the rest localisation is altered. Thus at A, a touch is felt as if at α ; at B, as if at β ; at C, as if at γ , and so on. Many separate observations have been made, and the transference has always been in the same direction, and to the same points. The whole face and neck, tongue, and lips are normal.

The eyes showed from the first a certain staringness, but this tendency is growing more distinct. Von Graefe's symptom of Graves's disease, the delayed descent of the upper eyelid, was at first present occasionally, but has now become constant. The sight is acute, both as to form and colour; the pupils are equal, and react to light. The patient complains of occasional diplopia, but in both eyes there is marked marginal scotoma. Dr. Mackay has kindly taken perimetric tracings for us. The field of vision for different colours is altered in an interesting and suggestive way, for the perception of blue is relatively much more diminished than that of red. The ophthalmoscope reveals no structural change in the nerve or retina. The hearing is deficient in the left ear, but merely from excess of wax. Taste, smell, and muscular sense are normal.

The motor functions are disturbed in respect that there is constant movement in the right foot and leg, and this movement is of a rhythmical kind, exactly corresponding to ankle clonus. I have called it causeless or spontaneous ankle clonus. In the left foot and in the right hand non-rhythmical jerking movements are to be seen; they resemble the movements of chorea rather than the regular oscillation that mark the clonus. It is to be observed that the motor

constant jerking. Voluntary movements are well performed so far as the face, the hands, and arms are concerned. The patient stands as steadily as the clonus permits, and is not made worse when he closes his eyes. His gait is most peculiar, for he advances with a kind of corkscrew movement, taking three steps to the right, then three to the left, three to the right and three to the left with perfect regularity. He turns well enough, and he can walk

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

changes are most marked in the right leg, while the sensory skin changes are in the left side. The organic reflexes are normal, the skin reflexes are well marked, although their demonstration is interfered with by the clonic spasms. The knee-jerk is exaggerated on both sides, and ankle clonus is easily demonstrated in the left foot, less easily in the right, the difficulty being due to the

backwards, but with the same three-step movements. The gait gets worse if he is supported by people on each side of him, and it is brought about by each second step having an exaggerated adduction, so that the foot which is raised for the advance is passed over and in front of the other foot. This, he says, is not the result of any feeling of giddiness, but simply because he cannot help making these move-

ments. No abnormality has been discovered in the electric conditions of nerves or muscles.

The vasomotor functions show, in addition to the undue irritability of vessels, which marks itself by the urticaria scripta, generally distributed throughout the body, an abnormality of the thyroid gland which I have not hitherto seen. On some occasions it is so small that it can scarcely be made out, on others so large as to constitute a distinct tumour. Emotional excitement and physical exercise often cause the enlargement, but not invariably. The transitions are frequently abrupt, the rise and fall occurring within a few hours; there are no trophic changes. The cerebral and mental functions are normal. The patient sleeps well, and during sleep is free from his jerking movements, but they immediately recur on his awaking.

Fig. 5.

The records of his case have been kept with the most admirable care by the resident physicians and clinical clerks in charge, Drs. Murray Leslie and Cattanaach, and Messrs. Laing and Murray Stewart, but I feel especially grateful to Mr. Laing for his unwearied patience in eliciting the facts and testing the accuracy of the patient's statements; and to Mr. Fothergill for the admirable drawings which he has made of this and other patients.

COMMENTARY.

As I have already told you, I shall discuss to-day only the sensory changes. The first question to emerge is, of course, whether the patient's statements are true or false. There is something in his manner which is little fitted to inspire confidence, and he has been often in hospital with various nervous symptoms, and I have been told that after one of his

former visits he had taken some credit to himself for having outwitted the officials. Such considerations as these have led us to watch him very closely, to pay him surprise visits, to see him when he was not aware of being observed, to have an eye kept upon him by quite a number of good observers, and never once during the three months has any one of them seen him walk except in his three-step method, never once have they seen him awake without his ankle clonus being briskly in action, and only a degree of diminution occurs when his attention is absorbed as completely as we find it possible to do. I do not believe that any man could keep up, during a period of three months, clonus of the right foot, and irregular jerking spasms of the left and of the right hand, by a mere effort of malingering, and I think that a malingeringer could not always remember to take the triple step, as our patient always

Fig. 6.

does, and therefore I think his motor symptoms are genuine, and give proof of profound disturbance of the nervous system. The sensory symptoms were only discovered when his case was being taken, and all who have had to do with him have come to the conclusion that he is describing truly what he experiences, and some of us have had a good deal of experience of judging of men, and are not supposed to be over credulous. But while one cannot be absolutely certain as to the sensory phenomena, the vasomotor changes have a definiteness that cannot be overlooked, and could not possibly be simulated.

We are led the more readily to accept his statements in regard to his skin impressions by the records that we possess of allied changes in the case of other patients.

Mr. Victor Horsley kindly examined the patient with me when he lectured before the University as holder of the

Cameron prize, and his researches upon transference of impressions in connection with lesions in the Rolandic area had led me to expect he would be specially interested in the case. He had found that in connection with disease of particular portions of that area, say that for movement of the thumb, the patient not only exhibited the motor phenomena now so well recognised, but also a certain deficiency of tactile sensibility in the skin of the thumb, and a tendency to refer touch to higher segments, as for example to the wrist, when the patient was really touched near the tip of the thumb. Mr. Horsley told me that he had not before seen such a transference as exists in our patient's case. I have demonstrated the phenomena also to a number of physicians eminent in neurology, and have written an account of it to several professional friends at a distance, and have looked through the literature of nerve diseases with a view of discovering some similar case, but without success.

The condition which approaches it most nearly is that which Professor Obersteiner, of Vienna, was the first to describe fully, and to which he gave the name allochiria (*ἄλλος χεῖρ*). Our case obviously is not referable to that category, for whereas in allochiria a touch is felt as if it were applied at a corresponding point on the opposite side of the body, in ours it is on the same side, on the same limb, but on the opposite side of it, although at the same level. Allochiria has been studied not only by Obersteiner but by Ferrier, Fischer, Hammond, Brown-Séquard, Leyden, Féré, Gellé, Gay of Bournemouth, and others, but perhaps most fully by Dr. M. Weiss of Prague. These observers have ascertained that allochiria may affect one-kind of sensory impression or all varieties, that not only may touch, but temperature-perception, pain, tickling be referred to the opposite side, but also that sight and hearing may be so transferred, and that not only may the skin, but mucous surfaces, be affected as well, and that even reflex movements and electrical stimulation applied on one side may produce their effects exclusively or in part on the other.

The kind of explanation which has commended itself to most writers on allochiria is suggested by the fact that it is so often found associated with locomotor ataxy or other organic disease of the cord. It consists in the conception that one or more of the paths for sensory impressions being blocked, a transference is effected by commissural fibres to the corresponding conducting structures in the opposite column, and so the sensorium receives an erroneous impression. I doubt whether this explanation proves very satisfying to anyone, but certainly it cannot apply in the case of our patient, seeing that the impressions are not referred to the opposite side of the body, but only to the opposite side of the limb. It might be suggested that we should account for faulty localisation of sensory impressions by ascribing it to morbid action of the nerve endings or of the nerves. But if this explanation were correct one would expect it to be associated with some alteration of perception in other respects, some loss of acuteness; but here no such abnormality exists—the acuteness of perception is as good on the one side of the body as the other, it is only the localisation that is disturbed. It might be conceived that some faulty conduction in the spinal cord or in the higher sensory tracts might account for it; but if the true seat of morbid action were there, one would also expect altered sensibility of other kinds. It is obviously most reasonable to refer it to the sensory centres and to a disturbance of a sensory faculty, which is developed somewhat later than others. From the time of birth a child perceives painful and other impressions, but only by degrees does it learn to localise them. This faculty alone is interfered with in our patient. Now it is conceivable that a change might arise in the nerve cells which receive the impressions, or in the mysterious borderland where the mental and the physical meet, but I should think that few will feel warranted in dogmatising as to which of these may be at fault in such a case as the present.

But I would venture to suggest that this case may perhaps lend some support to the opinion that in allochiria as well as in this case the fault is not so much in the conducting fibres as in a morbid action of the centres.

As to whether it is likely that any gross lesion exists in the sensory centres one is scarcely entitled to speak, but I think that this and all our patient's other symptoms are functional, and I hope to see them disappear.

The name allochiria has proved so useful in relation to the symptom which Obersteiner described, that I have thought it well to try to coin an expression which may serve as a name for this kind of faulty localisation, and, after consulting with my colleague, Professor Butcher, have decided to suggest the name "allachæsthesia," from *ἀλλαχῆ* or *ἀλλαχού*, elsewhere, and *αἰσθησία*, perception, as the most satisfactory term that occurs to us.

A CASE OF ACROMEGALY.

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I wish to record briefly the following case, which has been under my care at the Manchester Infirmary. Though the affection has existed for several years, and, as seen from the photograph (taken by Mr. F. Ashe, clinical clerk), was well

pronounced, the patient was little inconvenienced by it, and sought admission on account of extreme dyspnoea, which had only come on a few weeks before admission.

The patient, S. B., a weaver, aged 30, married, was admitted on September 11th, 1893. He had always enjoyed good health. Twelve months ago he was troubled with pain in the regions of the kidney, and had difficulty in passing urine, which had incapacitated him from his work for several weeks, but had not troubled him since. About five years ago he noticed that his hands and feet became larger, and that he required larger boots; shortly after he noticed that his head became larger and that his hats became too small. He had been troubled with pain in the head and neck for some time. He was able to follow his work till recently, when he began to suffer from great difficulty of breathing, which prevented him from following his occupation. He had always been tem-